

The opinion in support of the decision being entered today  
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOSEPHUS HUBERTUS CORNELIUS MARIA DEKKERS,  
JOHANNES MARTINUS DINA GOOSSENS, ROBERT DIRK VAN DE  
GRAMPEL, THEODORUS LAMBERTUS HOEKS, HENDRIK  
CORNELUS JACOBUS DE NOOIJER, CORNELIS JOHANNES  
GERARDUS MARIA VAN PEER, and GARY SMITH

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Appeal 2007-2602  
Application 10/797,975  
Technology Center 1700

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Decided: September 7, 2007

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Before DEMETRA J. MILLS, ERIC GRIMES, and NANCY J. LINCK,  
*Administrative Patent Judges.*

MILLS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 1-19, the only  
claims pending in this application. We have jurisdiction under 35 U.S.C.  
§ 6(b).

Representative claim 1 follows:

1. A method of making a shaped article, comprising:

thermoforming an article comprising an exterior surface comprising an inorganic biocidal agent and a first thermoplastic resin to form the shaped article, wherein the shaped article has improved biocidal activity compared to the unshaped article.

Cited References:

Hagiwara	US 4,775,585	Oct. 4, 1988
Ando	US 5,064,599	Nov. 12, 1991
Valyi	US 5,939,153	Aug. 17, 1999

Grounds of Rejection

Claims 1-19 stand rejected under 35 USC § 103(a) as obvious over Hagiwara in view of Valyi and Ando.

We affirm.

DISCUSSION

Obviousness

Claims 1-19 stand rejected under 35 USC 103(a) as obvious over Hagiwara in view of Valyi and Ando. We select claim 1 as representative of the rejected claims as Appellants have not provided separate arguments for the claims in the Brief. 37 C.F.R. 41.37(c)(1)(vii).

The Examiner finds:

Hagiwara et al. (col. 1, line 15-18; col. 4, line 44-68) disclose a process of making a shape[d] article comprising molding an article comprising an exterior surface comprising an inorganic biocidal agent.

(Answer 4.)

The biocidal agent of Hagiwara is a zeolite. (Abstract, Col. 3, ll. 34-55.)

Ando discloses a process of producing an antibacterial fiber or resin article containing a zeolite, and indicates that upon heating, the low melting component of the resins spreads to cause more zeolite particles to be exposed, which yields higher antibacterial activity on the substrate. (Answer 4.)

The Examiner acknowledges that:

[a]lthough Hagiwara et al. (col. 9, line 49-54) clearly disclose that ... molding processes are suitable for making containers, the difference between the invention of claims 1-19 and Hagiwara et al. is that Hagiwara et al. do not literally indicate that thermoforming is involved.

(Answer 4.)

The Examiner concludes:

it would have been obvious that molding process teachings of Hagiwara et al. generically include the "thermoforming" feature as claimed to obtain the invention of claims 1-19.

(Answer 5.)

The Examiner relies on Valyi (abstract; Figure 1) for its disclosure that containers can be produced in a continuous process by thermoforming techniques. (Answer 5.) The Examiner argues "it would have been obvious to one of ordinary skill in art to use the thermoforming techniques as taught

in Valyi for making the containers of Hagiwara et al. to obtain the invention of claims 1-19." (Answer 5.)

In order to determine whether a prima facie case of obviousness has been established, we consider the factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966); (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the relevant art; and (4) objective evidence of nonobviousness, if present.

We find based on the evidence before us that the Examiner has established a prima facie case of obviousness. Hagiwara represents the scope and content of the prior art, and discloses that heated and molded thermoplastic articles containing a biocidal agent are known. The difference from the prior art not shown by Hagiwara is an improved biocidal activity upon thermoforming the article. Ando shows that a process of producing an antibacterial fiber or resin article containing a zeolite, is known in the prior art and indicates that upon heating, the low melting component of the resins spreads to cause more zeolite particles to be exposed, which yields higher antibacterial activity on the substrate. Valyi discloses that thermoforming is a known process for preparing shaped articles. Thus, one of ordinary skill in the art would have been motivated to solve the problem of obtaining enhanced bactericidal activity in a resin article by heating it by a known thermosetting technique, an option within their technical grasp, to expose more zeolite bactericidal agent on the surface of the resin article.

Appellants contend that "Hagiwara teaches polymers containing zeolites, but fails to teach thermoforming to improve biocidal metal release." (Br. 5.) Appellants further argue that "one of ordinary skill in the art would

not be motivated to combine a reference primarily directed to biocidal fibrous articles with a reference directed to a beverage container, and that there is no expectation of success for the use of the thermosetting technique of Valyi in the compositions of Hagiwara." (Br. 5.)

"[W]hen the question is whether a patent claiming the combination of elements of prior art is obvious" the relevant question is "whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007). In addition, "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product ... of ordinary skill and common sense." *Id.* at 1742, 82 USPQ2d at 1397.

In the present case, we find that it would have been obvious to one of ordinary skill in the art to use a thermosetting process to make the zeolite containing polymer article of Hagiwara. Hagiwara describes heating and molding an article having a biocidal agent. Ando suggests that upon heating, the low melting component of the resins spreads to cause more zeolite particles to be exposed, which yields higher antibacterial activity on the substrate. Thus, one of ordinary skill in the art would have been motivated to solve the problem of obtaining enhanced bactericidal activity in a resin article by heating it by a known thermosetting technique, an option within their technical grasp, to expose more zeolite bactericidal agent on the surface of the resin article.

Appellants admit that Valyi teaches that both thermosetting and blow-molding techniques yield similar results and either process is known to those of ordinary skill in the art to shape an article. (Reply Br. 6.) However, Appellants argue that Valyi is directed to a multilayer structure comprising epoxides, and one of ordinary skill in the art would not combine the teachings of Hagiwara and Valyi because of the differences in the properties of the polymers. (Br. 6.) Appellants argue the Examiner presents an "obvious to try" fact scenario, and that a finding of obvious to try is not a proper showing for an obviousness determination. (*Id.*)

We are not persuaded by Appellants' argument that there would have been no motivation to combine the cited references. One of ordinary skill in the art, knowing that heating a resin article containing a zeolite bactericide provides greater zeolite (bacteriocidal) activity at the surface of the article, would have been motivated to use a heating technique such as that described in Valyi to make the article. Thermoforming techniques are known to be acceptable for use with many different types of polymers. (*E.g.*, Valyi, col. 5, ll. 39-44.)

Moreover, it is error to conclude that "a patent claim cannot be proved obvious merely by showing that the combination of elements was 'obvious to try.' . . . . When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to anticipated success, it is likely the product [is] not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that

it was obvious under § 103.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

Additionally, Appellants argue the Examiner's prima facie case of obviousness is rebutted by a showing of unexpected results. (Br. 10.) Appellants argue the comparative data in the Specification shows a three-fold improvement in biocidal metal ion release in the middle and sides of the article over a biocidal article that is not thermoformed. *Id.*

It is well settled that “[e]xpected beneficial results are evidence of obviousness of a claimed invention, just as unexpected results are evidence of unobviousness thereof.” *In re Gershon*, 372 F.2d 535, 537, 152 USPQ 602, 604 (CCPA 1967). In the present case, Ando provides evidence that upon heating, the low melting component of the resins spreads to cause more zeolite particles to be exposed, which yields higher antibacterial activity on the substrate. Thus, we agree with the Examiner that the result of increased antibacterial activity would be expected upon heating of the polymer or plastic article, as set forth in Ando.

The obviousness rejection is affirmed.

#### CONCLUSION

The obviousness rejection is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

tdl/ce

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